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Reforms, Remoteness and Risk in Africa

Understanding Inequality and Poverty during the 1990s

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Abstract

This study traces the interactions between economic growth, income inequality and consumption poverty in a sample of African countries during the 1990s. It draws on the much-improved household data sets now available in the region. It finds that experiences have varied: some countries have seen sharp falls in income poverty; others have witnessed marked increases. Economic growth has been 'pro-poor' in that the incomes of poor households have typically grown at similar or faster rates than average income. But the aggregate numbers hide significant and systematic distributional effects which have caused some groups and regions to be left behind. The paper explores the contours of these effects, and draws three key conclusions. First, agricultural market liberalization has been conducive to reductions in rural poverty. Second, market connectedness is crucial for poor producers to take advantage of the opportunities offered by economic growth. Some regions and households by virtue of their sheer…/…

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remoteness have been left behind when growth picks up. The availability of infrastructure (especially roads) and proximity to markets are crucial. And finally risks, such as rainfall variations and ill health are found to have profound effects on poverty outcomes, underscoring the significance of social protection in poverty reduction strategies in Africa.

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1 Introduction

Debates about the relationship between economic growth, income inequality and poverty have a particular resonance in Africa. While the persistence of deep-seated poverty is undoubtedly a result of its slow economic progress over the past two decades, there remains a difference of opinion about whether growth benefits the poorest segments of African societies. The Dollar and Kraay (2000) view that growth is good for the poor has been disputed largely in the African context (see Forsyth 2000). Resolving these differences is made complex by the many changes that have affected people's lives and livelihoods during the 1990s. Reforms, shifts in external opportunities, and sharp movements in the terms of trade have all changed the economic environment. Some countries faced internal civil strife and political instability. Others had to endure severe drought. And there have been serious health shocks, such as AIDS and malaria, affecting rich and poor alike. This complexity makes for considerable debate about the impact of economic growth on the lives of poor Africans.

In their review of the cross-country growth literature, Collier and Gunning (1999) conclude that the slow economic progress in Africa is due to three sets of factors: geography (the land-locked, tropical character of many countries); macroeconomic policies (notably economic policy volatility and a lack of openness to international trade); and microeconomic policies, which have disproportionately taxed rural producers, eroded social capital, undermined the provision of public services, and resulted in a retreat into subsistence by rural producers. Despite these important insights from cross country analysis, the reasons for 'Africa's growth and poverty paradox' (Easterly and Levine 1997) remain open to debate. The limited number of countries, and the high correlation between the explanatory variables, means that the findings are often highly sensitive to the specification of the estimation model. The use of countrywide averages in this literature also limits what can be said about the distributional dimension of growth. It is unlikely, therefore, that cross-country analysis alone will resolve the growth-poverty issue (Brock and Durlauf 2000; Bourguignon 2000; Deininger and Okidi 2001). A more microeconomic approach is called for (Collier and Gunning 1999; Ravallion 2001). Only then can research establish 'why some poor people are able to take up the opportunities afforded by an expanding economy—and so add to its expansion—while others are not' (Ravallion 2001:1813). This study adopts this micro perspective, and focuses on three key factors which govern how different groups in African society have been affected by recent economic growth (and also episodes of economic recession)—reforms, remoteness and risk.

The main point of departure in the growth-poverty debate in the African context has been the assessment of how economic policy reforms have affected income distribution and poverty. This debate refuses to go away, in part because it was not well served by good data (both macro and micro). Expressing an 'African perspective', Mkandawire and Soludo (1999:73) conclude that structural adjustment programmes did not place African economies on a 'poverty-reducing growth path'. And Stewart (1995:155) draws a similar

conclusion, albeit based on very flimsy data. On the other hand, the application of quantitative general equilibrium models suggested that policy reforms had mildly favourable effects (Sahn 1994, 1996; Sahn *et al.* 1997). Given the lags involved, the 1990s might be a more appropriate decade to examine the growth path induced by economic policy reforms in Africa (Collier and Gunning 1999). With more comprehensive and comparable household data (including emerging panel data), and with another decade of economic reform in many countries, it is now essential to revisit this issue.

Our second major theme is remoteness—the fact that many poor Africans live out their lives with little access to public services and markets. Only micro data can help unravel its effect on persistent poverty.[1] Regions and households within these regions, may evolve differently due to spatial externalities related for example to knowledge diffusion and agglomeration effects (Ravallion 2002). The marginal cost of adopting new technologies or expanding into new activities (for example, off-farm employment) typically declines as the necessary infrastructure becomes more widely available and more people in the network become accustomed to the new technologies. A household's spatial position also affects its access to both input and output markets—coined 'cost' and 'demand linkages' by Davis and Weinstein (2003)—necessary for accumulating wealth and benefiting from the opportunities an overall economic upturn provides. Regional differences in living standards are obviously also linked to the agro-ecological characteristics of the environment (temperature, rainfall, altitude, slope, soil fertility, etc.) which affect the productive potential of the locality and its inhabitants. And the availability of public infrastructure and services (electricity, sanitation, health and schooling facilities, credit and extension services) often differs considerably across regions. There is a strong expectation, therefore, that growth in Africa is likely to have highly differentiated geographical effects.

The third factor which governs how poor people have been affected by economic growth in Africa is risk. Among the factors explaining poverty at the household level 'disease and climate feature most prominently, and these are largely omitted in the aggregate analysis' (Collier and Gunning 1999:83). These growth-retarding risks might explain the 'Africa dummy' in growth regressions.[2] It is widely documented that households in Africa live and work in risky environments with insufficient access to credit or insurance to protect their consumption from shocks (Besley 1995; Morduch 1995). In the absence of such mechanisms they often engage in low-risk, low-return activities, which lock them into perpetual poverty. In the review that follows we focus on two main risk factors that have dominated Africa during the 1990s, disease and drought.

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[1] While the importance of location has received somewhat less attention in the developing economics literature, the point is obviously not new. Quah (1996) even argues that in understanding regional convergence (or lack thereof) in Europe physical location and geographical spillovers matter more than, national macro factors.

[2] In support of this hypothesis Guillaumont *et al.* (1999) find that economic, political and natural volatility are important factors in explaining the poor growth performance of African economies.

The study elabourates on the results of a series of poverty dynamics country studies[3] which exploit household survey data in Africa covering the 1990s. When available, household panel data have been used (Ethiopia and Uganda), though important insights were also obtained from repeated cross sections (Zimbabwe, Ghana, and Madagascar). It begins with a review in Section 2 of the trends in living standards during the 1990s, describing the evolution of income inequality and poverty and their relation with economic growth. Section 3 goes beyond the averages and identifies the main factors behind the observed trends—reforms, remoteness and risk. Concluding observations are made in the final section.

2 Living standards during the 1990s

Table 1 describes the evolution of private consumption, primary school enrollment, child malnutrition, and child mortality in our selection of countries during the 1990s. The first and obvious point is that living standards are still very low in these countries. By the close of the decade, no country enjoyed an annual per capita consumption in excess of US$500, and in Ethiopia it was just US$86. All countries fell far short of universal primary enrollment, and in some (for example, Ethiopia) primary enrollments were unacceptably low. Malnutrition was a very serious problem, especially in Madagascar and Ethiopia, where more than half the children exhibited signs of stunting or long-term malnutrition. Even in Ghana, Mauritania and Zimbabwe, there is evidence of stunting in about a quarter of the population under five years of age. Perhaps the most poignant indicator of the very low welfare levels is the incidence of child deaths. Under-five mortality exceeded 100 (per 1,000) in all countries. In Zambia, almost one in five children failed to survive to their fifth birthday. Too many African children are dying needlessly.

Second, there are differences in the *changes* in these indicators over time. In four countries economic living standards appear to have improved. But in Madagascar, average real consumption remained more or less unchanged, while it fell sharply in Nigeria, Zambia and Zimbabwe. Similarly, improvements in primary school enrollment in Ethiopia, Ghana, Mauritania and Uganda contrast with unsatisfactory outcomes in Zambia. Ethiopia and Mauritania experienced sharp reductions in long-term malnutrition, but there was little progress elsewhere. In all countries the long-term downward trend in child mortality appears to have continued through the decade, except in Zimbabwe, a result probably related to the AIDS epidemic (among other factors), and in Nigeria. Also the 2000/01 round of the Uganda Demographic and Health Survey suggests that child mortality in Uganda has been unchanged (and possibly even increased) since 1997 (UDHS 2001), despite economic gains.

[3] The selection of countries was based on the availability of comparable measures of consumption, and includes Ethiopia, Ghana, Madagascar, Mauritania, Nigeria, Uganda, Zambia, and Zimbabwe. These are reported in Bigsten et al. (2003) and Dercon (2000, 2002); Coulombe and McKay (2001); Paternostro *et al.* (2001); McCulloch *et al.* (2000); Canagarajah *et al.* (2000); Appleton (2001); Appleton *et al.* (1999); Deininger and Okidi (2001); McCulloch *et al.* (2001); Alwang and Ersado (1999); and Alwang *et al.* (2002).

Table 1: Evolving living standards in eight African countries during the 1990s

	Real private consumption per capita (constant 1995 US$)[1]			Net primary school enrollment rates[2]			Child malnutrition[3]			Child mortality[4]		
	Year one	Year two	Annual growth rate (%)	Year one (%)	Year two (%)	Change (% points)	Year one (%)	Year two (%)	Change(% points)	Year one (per 1000)	Year two (per 1000)	Change (per 1000)
Positive growth:												
Ethiopia 1994-97	80	86	2.6	19	25	+6	66	55	-11	190	175	-15
Ghana 1992-98	275	304	2.0	70	82	+12	26	26	0	119	104	-15
Mauritania 1987-95	297	361	3.6	28	41	+13	48	23	-25	-	149	-
Uganda 1992-97	211	258	4.7	68	86	+18	43	39	-4	165	162	-3
Stagnation/decline:												
Madagascar 1993-99	223	222	0.0	48	64	+16	50	49	-1	170	149	-21
Nigeria 1992-96	206	173	-3.4	94	98	+4	38	-	-	136	147	11
Zambia 1991-98	362	266	-6.6	73	66	-7	40	42	+2	192	202	10
Zimbabwe 1991-96	595	439	-5.2	83	86	+3	30	23	-7	80	90	10

Notes: [1]Growth rates calculated based on least squared method, which is less sensitive to the choice of base and terminal period. [2]Net enrollment rates = percentage of children of school age enrolled in primary school as a fraction of the total number of children in that age group. Figures obtained from the surveys analyzed in the Poverty Dynamics studies. First year figure for Ethiopia refers to 1996. Figures for Nigeria reflect gross enrollment rates in 1994 and 1996 and are obtained from World Development Indicators. [3]Child malnutrition defined as the percentage of children stunted, i.e. z-score of height for age which is less than -2; the reference periods for these figures approximate to those in column 1. [4]Child mortality under 5 (per 1,000 live births); the reference periods approximate to those in column 1.

Sources: World Bank data and country studies under the *Poverty Dynamics* study (see footnote 3 and references).

Third, the trends in the indicators are generally consistent with each other, though there are some important exceptions. In the four countries experiencing economic growth (Ethiopia, Ghana, Mauritania, and Uganda) the trends in human development indicators match the improvement in economic well-being, albeit to different degrees. But in those experiencing stagnation and decline, the signals are noisier. In some cases the education indicator improved despite the stagnation or decline in economic living standards (Madagascar, Nigeria and Zimbabwe). Child mortality improved in Zambia and child malnutrition improved in Zimbabwe during episodes of deteriorating economic circumstance. Such outcomes (and the experience of Uganda after 1995) serve as a reminder that focusing only on one dimension of well-being can be misleading when tracking poverty dynamics over time (World Bank 2000).

2.1 Income inequality[4]

We turn now to the distributional aspects of economic well-being, and to the issue of whether episodes of growth in the 1990s in Africa were associated with changes in income

[4] As all our empirical measures of income are based on expenditures, we use the terms 'income' and 'consumption' interchangeably in the remainder of the text.

Table 2: Consumption inequality[1] during the 1990s in eight African countries

Gini coefficient	Year 1	Year 2	Change
Ethiopia[2]			
1994-97 (rural)	0.39	0.43	0.04
1994-97 (urban)	0.40	0.45	0.05
All	0.39	0.44	0.05
Ghana 1992-8			
Rural	0.33	0.33	0.00
Urban	0.34	0.31	-0.03
All	0.37	0.37	-0.00
Madagascar 1993–99			
Rural	0.42	0.36	-0.06
Urban	0.41	0.38	-0.03
All	0.43	0.38	-0.05
Mauritania 1987-95			
Rural	0.43	0.37	-0.06
Urban	0.40	0.36	-0.04
All	0.43	0.39	-0.04
Nigeria 1992-96			
Rural	0.51	0.44	-0.07
Urban	0.51	0.51	0.00
All	0.51	0.47	-0.04
Uganda 1992-2000			
Rural	0.33	0.32	-0.01
Urban	0.39	0.40	0.01
All	0.36	0.38	0.02
Zambia 1991-98			
Rural	0.61	0.48	-0.13
Urban	0.47	0.43	-0.04
All	0.58	0.48	-0.10
Zimbabwe 1991-96			
Rural	0.58	0.57	-0.01
Urban	0.60	0.59	-0.01
All	0.68	0.64	-0.04

Note: (1)Real expenditures per adult equivalent; real per capita expenditures for Ethiopia, Nigeria and Madagascar. (2)Purposively sampled villages and urban centers; not nationally representative.

Source: Country studies under *Dynamics of Poverty* study (see footnote 3 and references).

inequality. Increasing reliance on markets and the withdrawal of the state might be expected to increase income inequality (people with low levels of education, and limited access to public services and markets being less likely to take advantage of the opportunities growth presents). But on the other hand, given the previous tendency for the state to tax agriculture and the rural sector heavily, the removal of such interventions might result in improved national income distributions. We present Gini coefficients, a popular measure of inequality, to describe how income inequality evolved in our sample of countries (Table 2). All underlying 'welfare measures' are based on real total household

expenditures.[5] The surveys were designed to enable comparisons over time within a country, though due to different survey designs caution is warranted in making comparisons across countries. Nonetheless, the differences in the degree of income inequality in our sample of countries are striking. At one extreme, Zimbabwe has a highly unequal distribution (a Gini ratio of over 0.6),[6] reflecting unequal land distribution, a result in part of its colonial history. Income distributions in Ghana and Uganda are far more egalitarian.

In terms of evolution, the picture is one of little change in *overall* income inequality in these countries,[7] except in Zambia. Reforms and growth have clearly not led to a significant deterioration in consumption inequality, as popular belief would hold (Forsyth 2000)—though Ethiopia forms an exception. Nevertheless, these aggregate measures of inequality can be misleading. They may in fact mask a great deal of distributional change, an issue we review further in Section 3 below.

2.2 Trends in income poverty during the 1990s

If growth episodes were not associated with significant changes in inequality, did they lead to poverty reduction? Table 3 reports poverty estimates for our countries. As with the inequality measures, real household consumption per adult equivalent (or in some cases, per capita) is taken as the central economic welfare measure. Poverty lines in all cases (except Mauritania) are derived from a food consumption basket, estimated to yield a minimum caloric intake, with adjustments made for essential non-food consumption. These poverty lines are typically much higher than the purchasing power parity US$1/day poverty line. The average poverty incidence in 24 spells of poverty change in African countries analyzed by Ravallion (2001) was 31 per cent (based on the US$1/day line). This compares with (unweighted) average headcounts of 55 per cent in our sample of twelve spells, indicating higher poverty lines. Because of differences in survey design and in the specifics of how the welfare measure and poverty lines are derived, the data in Table 3 are not comparable across countries. But the research has been designed to ensure comparable estimates over time.

The poverty measures we report here are derived from the familiar class of poverty indices after Foster, Greer and Thorbecke (1984). In addition to the poverty headcount (P_0), Table 3 also includes the severity poverty index (P_2) because it is sensitive to the

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[5] For most countries, expenditure is normalized on the number of 'equivalent' adults in the household. In Ethiopia, Nigeria and Madagascar, the welfare measure is real household expenditure *per capita.*

[6] Intuitively, the Gini index of a population represents the expected income difference between two randomly selected individuals or households. From Table 1 we know that in Zimbabwe real average per capita consumption in 1996 amounted to US$439. The corresponding Gini index is 0.64 (Table 2). Thus, in 1996 the per capita consumption of any two randomly selected Zimbabweans differed on average by US$281 (=0.64*US$439)—a clear indication of high inequality given that average per capita consumption is only US$439.

[7] A similar picture emerges when using the Theil inequality measures.

distribution of income *among* the poor, and particularly to changes in the living standards of the poorest of the poor. The data suggest the following:

- Most countries can be considered as having to deal with 'mass' poverty. Over 70 per cent were estimated to be poor in Madagascar and Zambia. And 66 per cent of Nigerians were estimated to be poor in 1996.
- There is no uniform trend. While consumption poverty incidence declined substantially in several countries (Ethiopia, Ghana, Mauritania and Uganda), it rose sharply in Nigeria and Zimbabwe. Poverty has fluctuated in Zambia and Madagascar, increasing marginally in the former and remaining more or less unchanged in the latter.
- Where the incidence of poverty has declined, the data suggest that the poorest sections of the population have also benefited. This is suggested by the significant downward trend in P_2. In several cases the percentage fall in the P_2 measure was greater than that in P_0.

Table 3: Consumption poverty in eight African countries during the 1990s

	Poverty headcount (P_0)			Severity index (P_2)		
	Year 1	Year 2	% change	Year 1	Year 2	% change
Ethiopia						
1994-97	41	35	-14	8	6	-27
Ghana						
1992-98	51	39	-24	9	7	-22
Madagascar						
1993-97	70	73	5	17	19	12
1997-99	73	71	-3	19	19	0
Mauritania						
1987-95	58	35	-40	17	6	-65
Nigeria						
1985-92	46	43	-7	8	9	13
1992-96	43	66	53	9	17	89
Uganda						
1992-97	56	44	-21	10	6	-40
1997-2000	44	35	-20	6	5	-16
Zambia						
1991-96	70	80	14	30	31	1
1996-98	80	76	-5	31	26	-16
Zimbabwe						
1991-96	26	35	35	4	5	25

Source: World Bank data and country studies under *Dynamics of Poverty* study (see footnote 3 and references).

2.3 Poverty, inequality and economic growth

In some cases these changes in poverty occurred in a context of economic decline (Nigeria and Zimbabwe, and Madagascar and Zambia during the earlier periods). In others they accompanied overall economic progress (Ethiopia, Ghana, Mauritania and Uganda). To shed more light on the relation between poverty, inequality and growth, Table 4 presents a

Table 4: Relative importance of mean and distribution in the evolution of poverty incidence

	Percentage change in mean per capita expenditure	Percentage change in poverty headcount	Poverty elasticity wrt mean expenditure	Explained by changes in:*	
				Mean	Distribution
Ethiopia[1]					
1994-97	24.8	-13.8	-0.56	1.09	0.53
Ghana					
1992-98	24.9	-23.6	-0.95	-0.99	0.04
Madagascar					
1993–97	-17.5	4.7	-0.27	-0.77	0.50
1997–99	0.6	-2.7	-4.50	-0.78	-3.72
1993-99	-17	1.9	-0.11	-0.73	0.62
Mauritania					
1987-95	49.5	-40.4	-0.82	-0.75	-0.07
Nigeria					
1992-96	-41.1	53.6	-1.30	-1.32	0.02
Uganda					
1992-97	17.1	-20.7	-1.21	-1.06	-0.15
Zambia					
1991-96	-25.7	14.9	-0.58	-0.58	0.00
1996-98	13.2	-4.9	-0.37	-0.44	0.07
Zimbabwe					
1991-96	-28.8	35.3	-1.23	-2.22	0.99

Note: [1]Purposively sampled villages and urban centers; not nationally representative. *Decompositions based on Kakwani and Pernia (2000). Note that this method is an exact decomposition with no residual or interactive term.

Source*:* World Bank data and country studies under *Dynamics of Poverty* study (see footnote 3 and references).

decomposition of poverty incidence into two components: changes explained by changes in mean consumption (keeping the *distribution* of consumption unchanged); and changes arising from changing consumption distribution (with mean consumption kept constant). The poverty measure decomposed in the table is the elasticity of headcount poverty with respect to changes in mean household expenditure.[8]

[8] This is defined as the proportionate change in headcount poverty divided by the proportionate change in mean per capita household expenditure. For details of the method used see Kakwani and Pernia (2000).

In most countries, changes in poverty incidence are due predominantly to changes in mean expenditure (Table 4). But the results of this exercise also serve as a caution against over-generalizing for Africa. Uganda's growth experience (in which reduction in inequality bolstered the effects of rising mean consumption) contrasts with that of Ethiopia, where inequality increased, and dampened the poverty reducing impact of growth. Where there has been recession, mean and redistribution effects typically have opposite signs, and the redistribution effect substantially mitigates the poverty increasing impact of lower mean incomes (in Madagascar, Nigeria and Zimbabwe). Better-off groups clearly bear a heavier burden of income losses during periods of economic decline in Africa.[9] To assess further the extent to which these episodes of growth and recession are 'pro-poor' we follow Kakwani and Pernia (2000) in defining

$$\phi = \frac{\eta}{\eta_g}$$

where η is the *observed* elasticity of headcount poverty with respect to changes in mean expenditure, and η_g is the elasticity of headcount poverty assuming the distribution of income did not change during the period. ϕ can be defined as an index of 'pro-poor growth'. Growth can be considered pro-poor if $\phi > 1$.[10] Table 5 compares estimates of ϕ for these eight African countries with recent experience in Asia. On the basis of this sample of countries, growth and recession episodes in Africa have tended to be pro-poor,[11] and indeed more so than the Asian experience.

Table 5: Pro-poor growth indices (ϕ) in selected African and Asian countries

Growth episodes:			
Ethiopia 1994-97	0.51	Thailand, 1992-96	0.61
Ghana, 1992-98	0.96	Lao PDR, 1993-98	0.21
Mauritania, 1987-95	1.10	Korea, 1990-96	1.03
Uganda, 1992-97	1.14		
Zambia 1996-98	0.87		
Recession/stagnation episodes:			
Madagascar, 1993-97	2.85	Thailand, 1996-98	0.73
Nigeria, 1992-96	1.02	Korea, 1997-98	0.84
Zambia 1991-96	0.97		
Zimbabwe, 1991-96	1.81		

Note: For details of method see text. Asian country estimates are simple means across years within the subperiods shown.

Sources: Table 4; Kakwani and Pernia (2000).

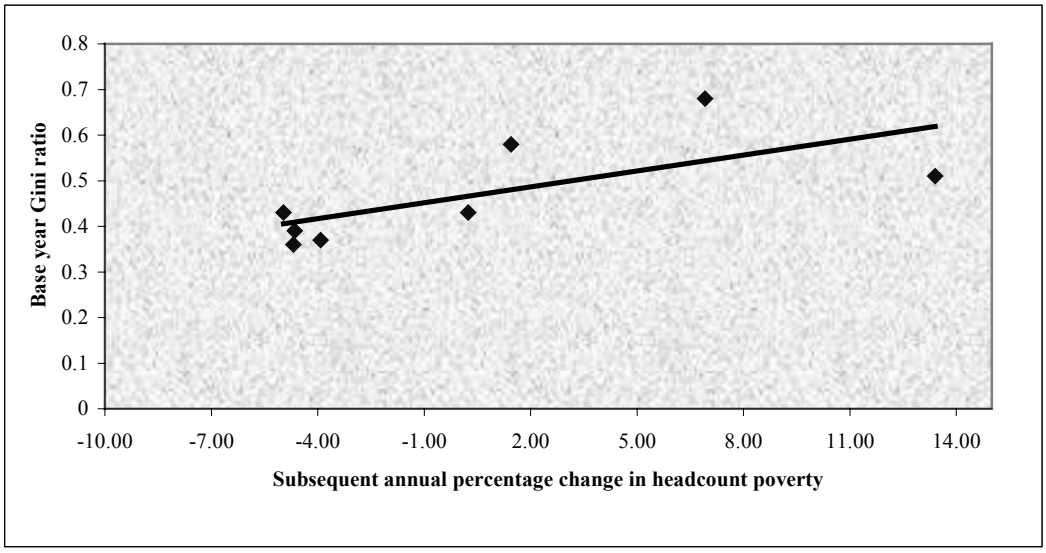
9 The tendency for income inequality to narrow as higher income groups bear the brunt of economic recession was also noted by Grootaert (1996) in analyzing poverty changes in Côte d'Ivoire in the 1980s. Though this does not seem to have occurred in Zambia during 1991-6.

10 When mean household expenditures are declining, $\phi = \eta_g / \eta$, so that a recession would also be considered pro-poor if $\phi > 1$.

11 This should of course not be taken to mean that the poor did not suffer during recessions, but rather that the rich suffered relatively quite a bit more.

Taking all eleven spells of poverty change in our sample of African countries reported in Table 4, we obtain a growth elasticity of poverty incidence of just -0.89 (Figure 1).[12] While growth is 'pro-poor', its quantitative impact on the headcount is limited in this sample. This follows from the fact that inequality did not change significantly, and it reflects the depth of poverty—large numbers are subsisting well below the poverty line (and poverty lines are set well above modal consumption). The growth elasticity of the severity index (P_2), at -1.28 (with a standard error of 0.21) is higher, indicating that growth has improved the economic well-being of the poorest, though not enough to take many of them out of poverty.

Figure 1: Initial inequality and subsequent poverty trends



Source: See text.

As discussed above, countries with lower initial inequality typically grow more rapidly in subsequent years, and experience greater poverty impact from that growth. The experience of this (albeit small) sample of African countries seems consistent with this view (Figure 1). The countries that had lower levels of initial inequality (as evidenced by the Gini ratios), were more likely to experience declines in poverty in subsequent years. spearman (correlation is 0.72 and statistically significant at 5 per cent level). Nonetheless, that said, there is also sufficient variation around this empirical regularity and the sample size is sufficiently small to counsel caution.

12 This is simply the slope coefficient in the regression of the proportionate change in headcount poverty on the proportionate change in the survey mean. The standard error on the slope coefficient is 0.11. When plotting the regression line, it runs almost through the origin, a reflection of the fact that income inequality has been stable over this period. The historical elasticities we observe for this sample of African countries are significantly lower than that estimated by Ravallion (2001) to be typical of low-income countries (-2.5). Given the different poverty lines used (he uses the much lower benchmark of PPP$1/day) and the different method of computation, his estimates are not comparable with ours.

3 Growth and systematic changes in income distribution

The evidence from the African experience covered in this study indicates that growth and recession have been pro-poor. Yet, further decomposition of national inequality and poverty measures—by socioeconomic group and geographical location—indicates that the aggregate statistics often mask a wide variety of experiences. Some groups and regions gained disproportionately from the new opportunities following economic reforms and growth, while others lost out or even became impoverished. Similarly, overall Gini coefficients often appear stable over time despite substantial churning within and across geographical regions. These divergent experiences suggest that in addition to reforms in economic policy, other factors such as location and infrastructure, households' private endowments, and the occurrence of shocks further condition if households can escape poverty in the wake of overall economic growth.

To disentangle the effects of these disparate events and factors on the different sections of African society, studies have often relied on economy-wide modeling techniques (Bourguignon and Morrison 1992; Sahn *et al.* 1997). These techniques can generate counterfactuals and provide important insights into the respective impacts of policies and other shocks. On the other hand, the models typically impose a strong structure which sometimes leads to questions about their realism. In addition, they are most often calibrated at one point in time. As a result, they cannot always confidently track changes over time—the economic history, which usually involves policy-induced structural changes in the economy. This study places emphasis instead on the microeconometric evidence emerging from the much improved and richer household survey data. We highlight in particular two poverty dynamics panel studies—Dercon (2002) on Ethiopia, and Deininger and Okidi (2001) on Uganda. Focusing on the factors they identify as key for economic growth and poverty reduction, we then assess the evidence from the other case studies which use either repeated cross sectional regressions (Zimbabwe, Madagascar, Ghana) or simply an extensively documented narrative linking the macro-events to the observed evolutions in household welfare (Zambia and Mauritania).

The Ethiopia and Uganda studies are particularly informative. First, both involve the use of panel data, and their methodologies and results are similar. Second, both countries experienced far-reaching reforms in economic policy, inducing changes in market institutions, relative prices and producer behaviour. The rural sector in Ethiopia had previously been largely ignored and heavily taxed. In the early 1990s agricultural reforms were initiated including the abolition of food delivery quota for farmers, and a relaxation (and later abolition) of restrictions on private grain trades. These measures substantially reduced the food marketing margins between surplus and deficit regions. The Birr was devalued by 142 per cent and the foreign exchange markets were liberalized. This positively affected the farmgate prices of tradeables, such as coffee and chat, even though the effect was somewhat muted due to the existence of parallel markets. Producer prices for coffee also evolved favourably during the period because of increasing world prices.

In Uganda, government policy changed from the late 1980s on, dismantling the biases against rural producers. Coffee marketing and exports were liberalized, and direct export taxation was abandoned. Similar measures were taken in the cotton sector. The foreign exchange market was liberalized, leading to real exchange rate depreciation. The weighted mean real producer price of export crops in Uganda (77 per cent of which are coffee) increased by 78 per cent between 1989-91 and 1995-97. Decomposition of this increase underscores the importance of the liberalization of the export crop markets for the cash crop producers. Changes in the nominal protection coefficient (producer price/border price), changes in the real exchange rate, and changes in the real world price contributed respectively 58, 9 and 11 per cent (Townsend 1999). Agricultural output recovered, averaging between 4 to 4.5 per cent per annum in real terms over the past decade, and this has played an important role in reducing poverty (Appleton *et al.* 1999).

Table 6: Decomposition of consumption growth per adult and poverty gap ratio (percentage points) in Ethiopia

	Actual		Counterfactual: No reform and peace		Counterfactual: No risk	
	Growth	Poverty	Growth	Poverty	Growth	Poverty
Real crop price change	15	-18			15	-16
Change in returns to road access/location	19	-23			19	-21
Private endowments						
Increase in land	7	-10	1	-2	7	-8
Change in returns to land	3	0			3	-1
Increases in adult labour	3	-4	3	-4	3	-4
Changes in returns to educated adults	0	0			0	0
Change in adult equivalent units	-5	7	-5	7	-5	7
Shocks						
Relative rainfall shock	-8	13	-8	14		
Illness shocks	-4	5	-4	5		
Residual	0	0	0	3	0	0
Percentage growth and percentage point poverty change (sum of above)	32	-29	-13	23	42	-44

Source: Dercon (2002).

Both Dercon (2002) and Deininger and Okidi (2001) use household panel data to assess how changes in economic policies and their effects on producer prices, influenced household welfare and rural poverty. Dercon (2002) uses panel data from six *rural* communities[13] in Ethiopia covering the period 1989-95. The change in household real consumption per adult is explained through a reduced form regression model with an Oaxaca-Blinder type decomposition. In this approach changes in consumption and poverty

[13] Because the study is not nationally representative, the results cannot be generalized to Ethiopia as a whole. Nonetheless, the methodology adopted as well as the empirical findings themselves provide important insights in the linkages between economic policy, growth and poverty reduction.

can be explained by changes in endowments over time and changes in returns to endowments. The main regressors were changes in real crop producer prices (which Dercon shows to be closely related to the macroeconomic and agricultural reforms implemented during this period), location (proxied by distance to an urban center), access to roads, private endowments (land, labour and education), and two shock variables, rainfall and ill-health. His results are summarized in Table 6.

Household consumption increased on average by 32 per cent between 1989 and 1995, and poverty—here defined as the poverty gap in logs—decreased by 29 percentage points. The growth in rural household incomes was largely fueled by changes in relative food-crop prices,[14] and increased returns to location and access to road infrastructure. Dercon's simulations show that consumption would have *declined* by 13 per cent and poverty would have *increased* by 23 per cent had there been no peace and no economic and agricultural reforms.[15] Interestingly, all poor households (even those who fell into poverty) benefited from the relative price changes that occurred. These findings suggest that the reforms and increased political stability substantially improved well-being of the poor, directly through a favourable change in relative prices, and for those well connected to markets, indirectly through an increase in the returns to market connectedness as determined by road infrastructure and distance to urban centers.

In addition to public endowments, such as road infrastructure and location, private endowments are also found to be important for consumption growth and poverty reduction.[16] Increases in land holdings (through redistribution) or improvement in the quality of the land owned, and increases in adult labour reduced poverty by 14 percentage points. Returns to land also increased,[17] but because the poor typically possess little (and often less fertile) land, they profited much less than the average household from the increased returns to land. Finally, the occurrence of shocks (especially rainfall, but also illness shocks) had a large negative effect, both on the growth process and poverty outcomes. If households had had access to full insurance protection from rainfall and health shocks, poverty would have declined by 42 percentage points compared with 29 percentage points in its absence. Dercon shows that the reason why households fell into poverty during this period was mainly the combined effects of the rainfall and illness

[14] Coffee prices also improved, yet coffee was grown in only one of the six sample villages, and the coffee harvest had failed that year in that particular village due to pest attack and drought. The effect of changing export crop prices cannot be evaluated from this sample, but its importance has been assessed explicitly in the Uganda case study described below.

[15] Dercon (1995) shows that the cereal marketing margins mainly improved because of the liberalization of the grain markets and only on some routes did the end of the war have a significant effect.

[16] Adult education levels are extremely low, less than 1 year per adult, and they are assumed not to have changed. The effect of education as such, as opposed to changes in returns to education, has thus not been evaluated in this study.

[17] As the direct effect of changing producer prices has been controlled for, changes in returns to land result from other factors such as shifts in the underlying production technology potentially induced by the reforms.

shocks. In sum, households that escaped poverty during the period not only benefited from better producer prices, they also enjoyed a more favourable location, and were endowed with good access to infrastructure and better land. Those who remained poor or who fell into poverty, despite their participation in the gains from the agricultural reforms, did so in part because they were badly placed in terms of location and land. They also suffered most from poor rainfall and from ill-health.

Deininger and Okidi (2001) analyze changes in consumption and income observed for a panel of about 1,200 Ugandan households during the period 1992-2000. They regress household level changes in consumption and income against variables representing the change in relative producer prices of coffee, access to infrastructure, initial endowments of physical and human capital, the initial health status of households, and their social capital. They found these variables to be significant in explaining growth in Ugandan household incomes during the 1990s. As in Ethiopia, the effect of changes in relative prices (in this case an increase in farmgate coffee prices largely brought about by market liberalization, but also by the devaluation and favourable world prices) on consumption growth was substantial.

Initial private endowments of education and other assets (mainly land) were also crucial for consumption growth. For example, if households had had 6 years of completed schooling on average (instead of the observed 3 years)—equivalent to completing primary schooling—growth in consumption would have been 2 percentage points higher. A difference of one standard deviation in terms of initial asset value (about half of which is accounted for by land) put households on a 2 percentage point higher consumption growth path. Households which in 1992 were afflicted by health problems—reportedly related to malaria in over 80 per cent of cases—experienced consumption growth which was (other things constant) 1.8 percentage points lower than those not experiencing such problems. Households with access to electricity enjoyed consumption growth that was 6 percentage points higher than other households.

The above results offer insight into what determined the growth in income and consumption among Ugandan households. How did such growth affect poverty? To address this, Deininger and Okidi estimate a multinomial logit model of changes in poverty status (households are classified as either not changing their status, falling into poverty or escaping from poverty). They find that the relative coffee price changes had a powerful poverty-reducing impact, indicating that their effect was broad-based and that price changes in tradable commodities directly benefited poor producers (and not only indirectly through the labour market.) Moreover, households with higher education, more initial assets (land), better health, and better access to infrastructure (electricity) and location (distance to municipality) were far less likely than others to fall into poverty, and more likely to escape from it. The results from these microeconometric analyses of panel data suggest that following factors are influential in determining the relationship between economic growth and poverty reduction:

- First, many poor rural households stand to benefit directly from reform—in this case liberalization measures and the gains can be substantial. In so far as liberalization measures increase producer prices, rural producers gain, and to the extent that food marketing margins tend to decline, rural consumers will benefit as well. Nonetheless, some gain more than others, depending on the product- and consumption-mix of the household.
- Second, a household's remoteness appears key in conditioning the extent to which it will benefit from liberalization measures. Specifically, whether the household had access to infrastructure and urban markets was an immensely important factor in governing the growth in household income. It explains about half of household consumption growth and poverty reduction in Ethiopia during 1989-95, and it was also quantitatively important for growth in Ugandan household income. Connectedness to markets as captured by access to infrastructure (especially roads, but also electricity) and distance to urban centers is likely to be a major factor in determining how growth in any country transmits its benefits to the population.
- Third, the potential for economic growth and poverty reduction further depends on a household's private endowments. Households with larger private endowments—be it more and better qualified labour or land—not only tend to be less poor, they are also better placed to profit from new opportunities generated by liberalization and institutional change.
- Finally, it is vital to separate out the effect of shocks when assessing the role of policy changes. Dercon highlights rainfall and health shocks, both of which are certain to be relevant to poor households in most African countries. The importance of health shocks is also underscored by Deininger and Okidi for the Ugandan case. Export commodity price fluctuations, though not explicitly treated in these studies, form another important risk factor.

We now examine the evidence on distribution and poverty changes in other countries covered in this review, looking for echoes of the findings from the panel data of Ethiopia and Uganda, and focusing on three issues: reforms, remoteness and risks.[18]

3.1 Reform

The changes in relative prices through exchange rate devaluations, the opening of domestic markets, and changes in the structure of production are certain to lead to shifts in income distribution, with producers of tradable goods (mostly exportables) benefiting directly from the economic policy reforms. The Ugandan and Ethiopian studies show that these effects were evident during the 1990s, and that they directly benefited poor households. The experience of Ghana in West Africa echoes these East African findings. Ghana

[18] The importance of private endowments (human and physical capital assets and land) is also underscored by the two panel studies. Given the acceptance of these in the literature, we focus here on the three other themes.

experienced sharp poverty reductions among cash (export) crop producers during the 1990s, a result of more favourable world cocoa prices and an increase in cocoa production. Table 7 compares trends in poverty among crop producers in rural Uganda and Ghana.

Table 7: Poverty incidence by rural activity, Ghana and Uganda in the 1990s

	Uganda				Ghana			
	Population share (2000)	1992	2000	% reduction	Population share (1998)	1992	1998	% reduction
Food crop	45.9	63.3	45.7	-27.8	43.9	68.1	59.4	-12.8
Cash crop	21.3	62.7	29.7	-52.6	6.3	64.0	38.7	-39.5

Source: Appleton (2001); Coulombe and McKay (2001).

In both countries about two-fifths of the population are food producing farmers, of whom about two-thirds were poor in the early 1990s. And in both countries, poverty fell among food producers, but the decline was not as great as that experienced by export crop producers. Most of the rural poor appear to have benefited from growth, but those producing export crops have benefited most. A much larger share of the population in Uganda grows cash crops (21 per cent) than in Ghana (6 per cent) which may explain the larger drop in poverty amongst food-crop producers in Uganda due to externality effects. Reviewing the existing evidence on the experience with agricultural reforms in sub-Saharan Africa, Kherallah *et al.* (2002) arrive at a similar conclusion—export-crop producers seem to have benefited more than food-crop producers. What needs to be better understood is the *transmission* mechanism that led to economic gains of households not producing for export.

Potential pathways include rural labour markets, with higher export crop prices stimulating export crop production leading to increased demand for agricultural wage labour and ultimately higher agricultural real wages. Abdulai and Delgado (2000) find that in Ghana a one per cent change in the domestic terms of trade between agriculture and non-agriculture leads to a 0.83 per cent change in the real agricultural wage rate in the long run, underscoring the importance of labour markets in transmitting the effects of economic reforms. Increased liquidity in rural economies from agricultural exports can also have important spin-off effects, through an expansion of both investment in export and food-crop production, and increased consumption of goods and services produced with previously underutilized local labour, land or capital. As a rule of thumb Delgado *et al.* (1998) posit that any policy-enhancing producer income from agricultural exports increases local rural income by twice the amount of the increased exports.

To understand the different evolution in poverty among food- and cash-crop producers, it is important to keep in mind that the former group tends to be much more heterogeneous than the latter. In export-crop growing regions, the effects of favourable export crop prices were transmitted to the food-crop growing households—either through the labour market

or the input and product markets, or both. Transmission of such benefits to areas unsuitable for export crop production, especially when they are also remote, is much harder. For example, in Ghana food producers in more remote and less integrated regions (in the north) did not experience a similar reduction in their poverty as food growers in cash-crop (and better integrated) areas (Coulombe and McKay 2001). Similarly, food-crop producers in northern Uganda, which is also less accessible, appear not to have benefited from recent growth (Appleton 2001).

3.2 Remoteness

The panel analysis of Ethiopian and Ugandan households provides strong empirical evidence that location and geography are important in determining how growth influences income distribution. These findings are supported by the experiences in the other case study countries. In some, the decline in poverty is observed in both the rural and urban areas (Uganda, Mauritania, Ghana; see Table 8). In others, the change is confined mainly to urban areas (Zambia between 1991-96). Striking differences in poverty changes are also observed across the administrative regions (Table 9). For example, while poverty incidence in Toliara (Madagascar) declined by just over 10 per cent during the 1990s, it increased by more than 40 per cent in Mahajanga (from 53 to 76 percentage points). In Uganda, the Central Province saw its poverty head count halve between 1992 and 2000, though it declined by only 9 per cent in the Northern Province. Poverty dropped by 80 per cent in Greater Accra (Ghana), while it rose by one third in the Upper East, and the regional discrepancies in the evolution of poverty observed in Zambia were of similar magnitude.[19]

Table 8: Headcount poverty trends in rural and urban areas of seven African countries during the 1990s

	Rural				Urban		
	Population share in year 1 (%)	Year 1 (%)	Year 2 (%)	Change (% points)	Year 1 (%)	Year 2 (%)	Change (% points)
Ghana							
1992-98	67	64	49	-15	28	19	-9
Madagascar							
1993-99	81	74.5	76.7	2.2	50.1	52.1	2
Mauritania							
1987-95	56	68	48	-20	45	17	-28
Nigeria							
1992-96	62	46	69	23	37	58	21
Uganda							
1992-97	88	59	48	-11	28	16	-12
Zambia							
1991-96	62	88	90	2	47	62	15
1996-98	62	90	86	-4	62	59	-3
Zimbabwe							
1991-96	63	36	48	12	3	8	5

Sources: Country studies under the *Poverty Dynamics* study (see footnote 3 and references).

[19] A similar pattern emerges when looking at average consumption growth across regions, as opposed to poverty change.

Clearly, geography matters in conditioning growth and poverty reduction, and the reasons for this can be manifold (Ravallion 2002). The marginal cost of adopting new technologies, household access to input and output markets, agro-ecological characteristics of the environment, and the availability of public infrastructure can differ considerably across regions.

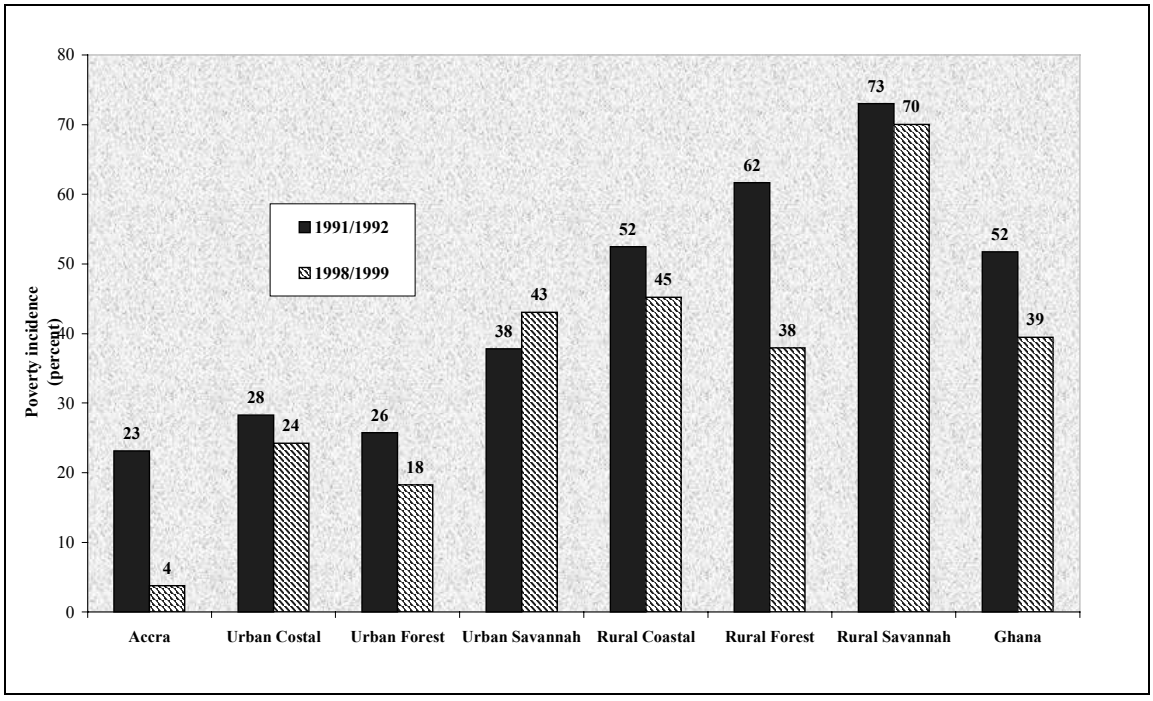
Table 9: Regional poverty change[1] in four African countries during the 1990s

Country	Selected regions	Poverty headcount (P_0)		
		Year 1 (%)	Year 2 (%)	% change
Ghana (1992-98)	Greater Accra	26	5	-80
	Upper East	67	88	32
	country total	51	39	-24
Madagascar (1993-99)	Toliara	81	72	-12
	Mahajanga	53	76	43
	country total	70	71	2
Uganda (1992-2000)	Central	46	20	-55
	North	72	66	-9
	country total	56	35	-37
Zambia (1991-98)	Northwestern	78	62	-21
	Lusaka	31	60	94
	country total	69	76	10

Note: [1]The regions with the largest positive and the largest negative change are reported for each country.

Sources: Country studies under the *Poverty Dynamics* study (see footnote 3 and references).

Figure 2: Ghana, incidence of consumption poverty by zone, 1992–98



Source: Coulombe and McKay (2001).

The evidence from the Ethiopian and Ugandan panel studies has especially pointed to the importance of market connectedness, as proxied by distance to urban centers and road infrastructure, and the role of public infrastructure (electricity). These themes also appear important in understanding the experiences from Ghana, Madagascar and Zambia. Poverty in Accra fell sharply, but not in other urban areas (Figure 2). In the Savannah zone poverty even *increased* in the urban areas, while it fell only marginally in the rural Savannah. Moreover, even after controlling for a host of household characteristics, community infrastructure variables and the agro-ecological environment (Coulombe and McKay 2001) living standards in the northern region appear much lower. Important clues as to why Ghanaians in the north did not benefit from growth are found in recent papers by Badiane and Shively (1998) and Abdulai (2000), which conclude that markets (more specifically the maize market) in the remoter northern region are not very well integrated with the economy at large. This lack of integration most likely impeded the transmission of the benefits of growth to the region. The multivariate regression analysis by Coulombe and McKay (2001) further indicates that communities with access to electricity tend to be better off.

Table 10: Rural poverty incidence by 'remoteness' quintile, Madagascar and Zambia (per cent)

		Madagascar (P_0)		Zambia (P_0)	
		1997	1999	1991	1998
1	most remote	79	84	86	75
2		82	78	81	76
3		76	76	83	73
4		72	72	82	74
5	least remote	72	72	69	69

Sources: Paternostro, Razafindravonona and Stifel (2001); and authors' computations.

'Remoteness' is also important in understanding geographical differences in poverty outcomes in Madagascar. Paternostro *et al.* (2001) disaggregate poverty according to an index of remoteness, the latter being a weighted sum of indicators reflecting access to roads, bus stop, agricultural extension services, modern fertilizers, and distance to schools and health facilities (the weights were derived from factor analysis). Their findings (Table 10) indicate an association between the degree of remoteness and the likelihood of being in poverty. They also show that while overall rural poverty remained largely unchanged during 1997 and 1999, households assessed to be the most remote, experienced increased poverty—in contrast to the least remote quintile where poverty indicators actually improved. In a similar fashion a remoteness index was constructed for Zambia based on households' distance to the food market, the post office and a public phone, public transport (potential indicators of market connectedness), primary and secondary school and distance to the hospital (indicators of access to public services). Again households in the most remote areas appear substantially poorer than those in the least remote areas. These findings are replicated when households are only classified according to an index of market connectedness or an index of access to public services, suggesting

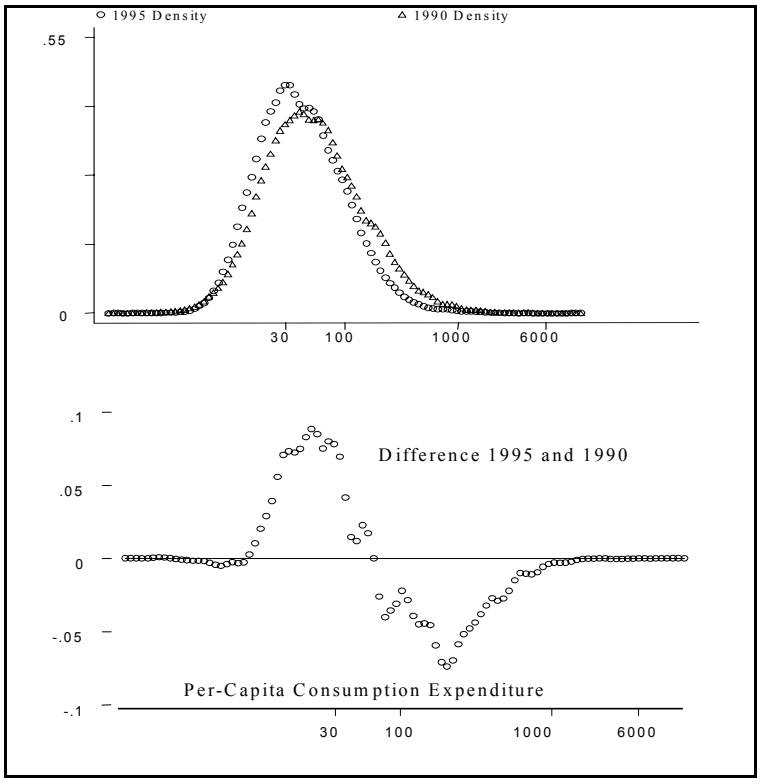
that geography affects poverty both through market connectedness and the availability of public services.

While the evidence presented shows that location is crucial in conditioning growth and poverty reduction linkages, a better understanding of the transmission channels is called for. Does the Peruvian experience (Escobal and Torero 2003) that private and public assets are more important in explaining regional income variations than agro-ecological characteristics also hold in the African context? Do spatial externalities affect growth and poverty reduction as suggested by the findings from rural China (Ravallion 2002)? The policy ramifications of such insights are substantial, as they shed light on the longstanding debate about the economic desirability of public investment in resource poor areas vis-a-vis the promotion of outmigration or resettlement**.**

3.3 Risk

Poverty estimates provide a snapshot of the standard of living at a certain point in time and reflect both policy reforms as well as temporary external shocks such as droughts. When evaluating the evolution of poverty it is thus important to control for the effect of external shocks on comparative poverty figures. Controlling for all other factors, the Ethiopian panel analysis estimated that household income growth was reduced by about a fifth because of rainfall shortage (Dercon 2002). The role of rainfall variations in influencing household income growth was also an important feature of the Zimbabwean and Madagascar experience.

Figure 3: Zimbabwe, shift in welfare distribution, 1990-95



Source: Alwang *et al.* (2002).

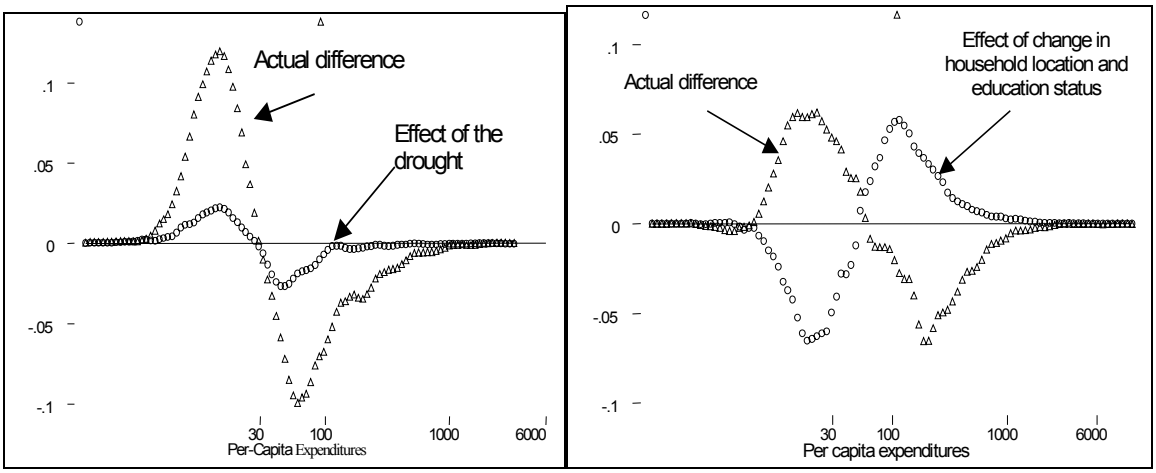
Figure 4: Zimbabwe, simulated effects of rainfall and household characteristics on changes in the welfare distribution, 1990–95

Panel A
Effects of rainfall (rural distribution only)

Panel B
Effects individual and household characteristics

Δ Observed difference between 1990 and 1995

o Difference between actual 1995 distribution and the 1995 distribution adjusted to 1990 conditions



Source: Alwang *et al.* (2002)

That poverty increased sharply in Zimbabwe during the 1990s is without question (Alwang *et al.* 2002). The decline in economic well-being (and increase in poverty) is evident from the leftward shift in the distribution of real household consumption (Figure 3). The change occurred mainly in the vicinity of the poverty line (Z$30 per month)—with a sharp increase in the numbers of people consuming just below, and a parallel decline in the numbers just above the poverty line. What is less clear is whether poverty increased because of the droughts that afflicted the country in 1991/92 and again in 1994/95, or because of the Economic Structural Adjustment Programme (launched in 1991) which was being implemented at the same time. Alwang *et al.* (2002) apply non-parametric methods to simulate what the 1995 distribution would have been if the 1990 rainfall patterns had applied that year. This exercise confirms that the drought led to an increase in poverty during the early 1990s, but it also indicates that the drought alone cannot explain the deterioration in economic well-being (Figure 4, Panel A). As discussed before, actual changes in household location, assets and individual characteristics (notably the levels of educational attainment) would actually, other things constant, have *raised* consumption levels and reduced poverty (Figure 4, Panel B). Without such changes incomes would have deteriorated even more than they did. Evidence from Madagascar further underscores the importance of weather shocks in comparing poverty over time. Simulations indicate that 75 per cent of the predicted change in household economic well-being and poverty incidence can be traced back to the relative change in drought occurrence between 1993 and 1999. The insurance capacity of households against covariate shocks in many parts of Africa is clearly extremely limited.

4 Concluding remarks

While it is true that *overall* income distributions (evidenced by the Gini ratio) have not changed during African episodes of growth, and that such growth (or recession) can be characterized as pro-poor in this aggregate sense, beneath these numbers exists a variety of experience. Neglect of this reality by policymakers—and sometimes also by academics—has often impeded a constructive and fruitful dialogue with 'civil society' about appropriate poverty reducing policies (Kanbur 2001). Our review of the microeconomic evidence shows that there have been systematic changes in income distributions and poverty in the countries covered. Of the main contours of these distribution changes, we have highlighted three key policy messages: the importance of economic reform for poverty reduction; the role of location and remoteness in conditioning how the benefits of growth are distributed; and the need to account for shocks in understanding distributional outcomes and poverty changes over time. The analysis of household panel data by Dercon (2002) for Ethiopia and Deininger and Okidi (2001) for Uganda provides the most systematic and empirically convincing cases that policy-induced changes in relative prices can have poverty-reducing effects. Micro-evidence from Ghana provides some corroboration from West Africa.

The second message is the need for a geographical perspective on poverty. The recent microeconomic evidence on poverty dynamics has shown that some regions, by virtue of their sheer remoteness, have been left behind somewhat as growth has picked up. Households with limited access to markets and public services have not benefited from growth during the 1990s. The provision of public goods (notably infrastructure services—from the Ethiopian case, especially roads and from the Ugandan case, electricity) is crucial to help poor households benefit from the opportunities generated by economic policy reforms and growth. Third, the microeconomic evidence underscores the importance of social protection in a poverty reduction strategy. The impact of rainfall variations and ill health are the two risk factors featured. Dercon (2002) estimates that poverty reduction in the sample of Ethiopian rural communities would have been 18 percentage points greater had households been protected from the effects of ill-health and rainfall shortages. The importance of weather shocks for poverty changes was also underscored by the findings from Zimbabwe and Madagascar. Deininger and Okidi (2001) find that ill-health amongst Ugandans back in 1992 noticeably increased the probability of being in poverty eight years later. In light of households' greater exposure to disease, and to the vagaries of weather (and world commodity prices following liberalization), policies to help the poor manage their risks have become even more important nowadays.

References

Abdulai, A. (2000). 'Spatial Price Transmission and Asymmetry in the Ghanaian Maize Market', *Journal of Development Economics* 63:327-49.

Abdulai, A., and C. Delgado (2000). 'An Empirical Investigation of Short- and Long-run Agricultural Wage Formation in Ghana', *Oxford Development Studies* 28(2-2):169-85.

Alwang, J., and L. Ersado (1999). 'Changes in Poverty in Zimbabwe: 1990-1996' (mimeo) Poverty Reduction and Social Development Africa Region, World Bank: Washington DC.

Alwang, J., and B. Mills and N. Taruvinga (2002). *Why has Poverty Increased in Zimbabwe?*' Poverty Dynamics in Africa Series, World Bank: Washington DC.

Appleton, S. (2001). 'Poverty in Uganda, 1999/2000: Preliminary Estimates from the UNHS' (mimeo, January), University of Nottingham: Nottingham.

Appleton, S., T. Emwanu, J. Kagugube, and J. Muwonge (1999). 'Changes in Poverty in Uganda, 1992-1997' (mimeo), Poverty Reduction and Social Development Africa Region, World Bank: Washington DC.

Badiane, O., and G. Shively (1998). 'Spatial Integration, Transport Costs, and the Response of Local Prices to Policy Changes in Ghana', *Journal of Development Economics* 56:411-31.

Besley, T. (1995). 'Savings, Credit and Insurance', in J. Behrman and T.N. Srinivasan (eds) *Handbook of Development Economics,* Elsevier Science: Amsterdam.

Bigsten, A., B. Kebede, A.Shimeles and M. Taddesse (2003). 'Growth and Poverty Reduction in Ethiopia: Evidence from Household Panel Surveys', *World Development* 31(1):87-106.

Bourguignon, F. (2000). 'Can Redistribution Accelerate Growth and Development?', paper presented at the World Bank ABCDE-Europe Conference, 26-28 June, Paris.

Bourguignon, F., and C. Morrisson (1992). *Adjustment and Equity in Developing Countries: A New Approach,* OECD Development Centre: Paris.

Brock, W.A., and S.N. Durlauf (2000). 'Growth Economics and Reality', *NBER Working Papers* 8041. National Bureau of Economic Research: Cambridge MA.

Canagarajah, S., J. Ngwafon and F. Okunmadewa (2000). 'Nigeria's Poverty: Past, Present, and Future' (mimeo), World Bank, Nigeria Country Department: Washington DC.

Coulombe, H. and A. McKay (2001). 'The Evolution of Poverty and Inequality in Ghana over the 1990s: A Study Based on the Ghana Living Standards Surveys' (mimeo), Office of the Chief Economist, Africa Region, World Bank: Washington DC.

Collier, P., and J.W. Gunning (1999). 'Explaining African Economic Performance', *Journal of Economic Literature* 37(1):64-111.

Davis, D.R. and D.E. Weinstein (2003) 'Market Size, Linkages, and Productivity: A Study of Japanese Regions' *WIDER Discussion Papers* 2003/53, UNU/WIDER: Helsinki.

Deininger, K., and J. Okidi (2001). 'Growth and Poverty Reduction in Uganda, 1992-2000: Panel Data Evidence' (mimeo, December) World Bank: Washington DC, and Economic Research Council: Kampala.

Delgado, C.L. *et al.* (1998). 'Agricultural Growth Linkages in Sub-Saharan Africa', *IFPRI Research Reports* 107, International Food Policy Research Institute: Washington DC.

Dercon, S. (1995). 'On Market Integration And Liberalization: Method and Application to Ethiopia', *Journal of Development Studies* 32(1):112-43).

Dercon, S. (2000). 'Changes in Poverty and Social Indicators in Ethiopia in the 1990s: (At Last) Some Good News From Ethiopia' (mimeo), Poverty Reduction and Social Development Africa Region, World Bank: Washington DC.

Dercon, S (2002). 'The Impact of Economic Reforms on Households in Rural Ethiopia: A Study from 1989 to 1995', *Poverty Dynamics in Africa Series*, World Bank: Washington DC.

Dollar, D. and A. Kraay (2000). 'Growth IS Good for the Poor' (mimeo, March), Development Research Group, World Bank: Washington DC.

Easterly, W., and R. Levine (1997). 'Africa's Growth Tragedy: Policies and Ethnic Divisions', *Quarterly Journal of Economics* 112(4):1203-50.

Escobal, J. and M. Torero (2003). 'Geography and Differences in Welfare in Peru', *WIDER Discussion Papers* (forthcoming), UNU/WIDER: Helsinki.

Forsyth, J. (2000). Letter to *The Economist*, 20 June.

Foster, J., J. Greer and E. Thorbecke (1984). 'A Class of Decomposable Poverty Measures', *Econometrica* 52(3)761-6.

Grootaert, C. (1996). *Analyzing Poverty and Policy Reform,* Avebury: Aldershot.

Guillaumont, P., S. Guillaumont and J.F. Brun (1999). 'How Instability Lowers African Growth', *Journal of African Economies* 8(1):87-107.

Kakwani, N. and E.M. Pernia (2000). 'What is Pro-poor Growth?', *Asian Development Review* 18(1)1-16.

Kanbur, R. (2001). 'Economic Policy, Distribution and Poverty: The Nature of Disagreements', *World Development* 29(6):1083-94.

Kherallah, M., C. Delgado, E. Gabre-Madhin, N. Minot and M. Johnson (2002). *Reforming Agricultural Markets in Africa*, John Hopkins University Press: Baltimore.

McCulloch, N., B. Baulch, and M. Cherel-Robson (2000). 'Growth, Inequality and Poverty in Mauritania, 1987-1996' (mimeo), Poverty Reduction and Social Development Africa Region, World Bank: Washington DC.

McCulloch, N., B. Baulch, and M. Cherel-Robson (2001). 'Poverty, Inequality and Growth in Zambia during the 1990s', *WIDER Discussion Papers* 2001/123, UNU/WIDER: Helsinki.

Mkandawire, T. and C.C. Soludo (1999). *Our Continent Our Future,* African Perspectives on Structural Adjustment, Council for the Development of Social Science Research in Africa: Dakar, and International Development Research Centre: Ottawa, and Africa World Press: Asmara.

Morduch, J. (1995). 'Income Smoothing and Consumption Smoothing', *Journal of Economic Perspectives* 9(3):103-14.

Paternostro, S., J. Razafindravonona and D. Stifel (2001). 'Changes in Poverty in Madagascar, 1993-1999', *Africa Region Working Papers* 19, World Bank: Washington DC.

Quah, D. (1996). 'Regional Convergence Clusters Across Europe', *European Economic Review* 40:951-8.

Ravallion, M. (2001). 'Growth, Inequality and Poverty: Looking Beyond Averages', *World Development* 29(11):1803-15.

Ravallion, M. (2002). 'Externalities in Rural Development: Evidence for China', *World Bank Policy Research Working Papers* 2879, World Bank: Washington DC.

Sahn, D. (ed.) (1994). *Adjusting to Policy Failure in African Economies*, Cornell University Press: Ithaca.

Sahn, D. (ed.) (1996). *Economic Reform and the Poor in Africa*, Clarendon Press: Oxford.

Sahn, D., P.A. Dorosh and S.D. Younger (1997). *Structural Adjustment Reconsidered: Economic Policy and Poverty in Africa,* Cambridge University Press: Cambridge.

Stewart, F. (1995). *Adjustment and Poverty: Options and Choices*, Routledge: London.

Townsend, R. (1999). 'Agricultural Incentives in Sub-Saharan Africa: Policy Changes', *World Bank Technical Papers* 444, World Bank: Washington DC.

UDHS (2001). *Uganda Demographic and Health Survey 2000–Preliminary Report*, Uganda Bureau of Statistics: Entebbe.

World Bank (2000). *World Development Report 2000/1: Attacking Poverty,* World Bank: Washington DC.